

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows. Please amend claims 16, 38, 41, and 43, cancel claim 42, and add claims 44 – 46, as follows.

- 1 1. (Previously Presented) A method for presenting data from a set of one or more tables
2 as a set of objects that belong to an object class, the method comprising the steps of:
3 reading data from one or more rows of the set of one or more tables, wherein said one
4 or more rows do not store an object id used for modeling the data in said one
5 or more rows as an object that belongs to said object class;
6 reading database metadata that defines how to derive object ids from values in one or
7 more columns;
8 generating, in the manner defined by said database metadata, an object id derived
9 from one or more values in the one or more columns in said one or more rows;
10 and
11 presenting data from said one or more rows as an object that belongs to said object
12 class and that has said object id.
- 1 2. (Previously Presented) The method of Claim 1, wherein the step of generating an
2 object id includes generating an object id based on values from one or more rows of a
3 relational table that belongs to the set of one or more tables.
- 1 3. (Original) The method of Claim 1, further comprising the step of
2 generating a reference to the object based on the object id.

1 4. (Original) The method of Claim 3, further comprising the step of accessing the object
2 based on the reference generated for the object.

1 5. (Previously Presented) The method of Claim 1, wherein:
2 the method further includes the steps of:
3 receiving a request to define a view, said request specifying that said object id
4 is generated based on values in said one or more columns;
5 in response to receiving the request to define the view, storing specification
6 data that specifies the one or more columns; and
7 the step of generating an object id includes determining how to generate the object id
8 by inspecting said specification data.

1 6. (Original) The method of Claim 5, wherein the step of receiving a request to define a
2 view includes receiving a request that specifies the one or more columns as including
3 at least one column from a relational table.

1 7. (Previously Presented) A method for presenting, as an object, data from a set of one
2 or more tables residing in one or more databases, the method comprising the steps of:
3 reading first database metadata that indicates how to generate a column object from
4 one or more columns;
5 reading a first set of data from the one or more columns of a plurality of rows from
6 the set of one or more tables, wherein second database metadata defines said
7 one or more tables, wherein said second database metadata does not specify
8 how to generate said column object from said one or more columns;

9 generating, in the manner indicated by said first database metadata, a particular
10 column object based on said first set of data; and
11 presenting a second set of data from said set of one or more tables as object oriented
12 data by presenting said second set of data as said object that has said particular
13 column object as an attribute.

1 8. (Previously Presented) The method of Claim 7, wherein the step of reading a first set
2 of data includes reading data from one or more rows of at least one relational table.

1 9. (Previously Presented) The method of Claim 7, wherein the step of generating a
2 particular column object includes generating a collection object.

1 10. (Original) The method of Claim 9, wherein the step of generating a collection object
2 includes generating said collection object as a list of elements belonging to a single
3 data type.

1 11. (Original) The method of Claim 9, wherein the step of generating a collection object
2 includes generating said collection object as a nested table.

1 12. (Previously Presented) The method of Claim 9, wherein the step of generating a
2 particular column object includes generating a column object belonging to a user
3 specified object type.

1 13. (Previously Presented) The method of Claim 9, where the step of generating a
2 particular column object includes generating a column object that is a reference to
3 another object.

1 14. (Previously Presented) The method of Claim 13, wherein the step of generating a
2 particular column object includes generating a column object that is a reference to an
3 object presented by an object view.

1 15. (Previously Presented) The method of Claim 13, wherein the step of generating a
2 particular column object includes generating a column object that is a reference to an
3 object residing in a database.

1 16. (Currently Amended) A computer system, comprising:
2 a processor;
3 a memory coupled to said processor;
4 database metadata that indicates how to derive object ids from values in one or more
5 columns;
6 a set of one or more tables, said set of one or more tables containing one or more
7 rows, wherein said one or more rows do not store an object id used for
8 modeling the data in said one or more rows as an object that belongs to said
9 object class;
10 said processor configured to read data from one or more rows of the set of one or
11 more tables;
12 said processor configured to generate, in the manner defined by said database

13 metadata, an object ~~id derived id~~ derived from one or more values from said
14 one or more rows, wherein said one or more values reside in said one or more
15 columns; and
16 said processor configured to present data from said one or more rows as an object that
17 belongs to an object class and that has said object id.

1 17. (Original) The computer system of Claim 16, wherein said values from said one or
2 more rows include values from one or more rows of a relational table that belongs to
3 said set of one or more tables.

1 18. (Original) The computer system of Claim 16, further comprising:
2 said processor configured to receive a request to define a view, said request
3 specifying one or more columns of the set of one or more tables containing
4 values used to generate said object id;
5 said processor configured to respond to receiving the request to define the view by
6 storing specification data that specifies the one or more columns; and
7 said processor configured to generate the object id based on values from said one or
8 more rows by determining how to generate the object id by inspecting said
9 specification data.

1 19. (Previously Presented) A computer system, comprising:
2 a processor;
3 a memory coupled to said processor;

4 one or more databases;
5 a set of one or more tables contained in said one or more databases;
6 first database metadata that defines how to generate a column object from one or
7 more columns;
8 second database metadata that defines said one or more tables, wherein said second
9 database metadata does not specify how to generate said column object from
10 said one or more columns;
11 said processor configured to read a first set of data from a plurality of rows from the
12 set of one or more tables;
13 said processor configured to generate, in the manner defined by said first database
14 metadata, a particular column object based on said first set of data; and
15 said processor configured to present a second set of data from said set of one or more
16 tables as object oriented data by presenting said second set of data as said
17 object that has said particular column object as an attribute.

1 20. (Previously Presented) A computer-readable medium carrying one or more sequences
2 of one or more instructions for presenting data from a set of one or more tables as a
3 set of objects that belong to an object class, wherein the execution of the one or more
4 sequences of the one or more instructions causes the one or more processors to
5 perform the steps of:
6 reading data from one or more rows of the set of one or more tables, wherein said one
7 or more rows do not store an object id used for modeling the data in said one
8 or more rows as an object that belongs to said object class;

9 reading database metadata that defines how to derive object ids from values in one or
10 more columns;
11 generating, in the manner defined by said database metadata, an object id derived
12 from one or more values in the one or more columns in said one or more rows;
13 and
14 presenting data from said one or more rows as an object that belongs to said object
15 class and that has said object id.

1 21. (Previously Presented) The computer readable medium of Claim 20, wherein the step
2 of generating an object id includes generating an object id based on values from one
3 or more rows of a relational table that belongs to the set of one or more tables.

1 22. (Previously Presented) The computer readable medium of Claim 21, wherein:
2 the one or more sequences of instructions includes one or more instructions for
3 performing the steps of:
4 receiving a request to define a view, said request specifying one or more
5 columns of the set of one or more tables containing values used to
6 generate said object id;
7 in response to receiving the request to define the view, storing specification
8 data that specifies the one or more columns; and
9 the step of generating an object id includes determining how to generate the object id
10 by inspecting said specification data.

1 23. (Original) The computer readable medium of Claim 22, wherein the step of receiving
2 a request to define a view includes receiving a request that specifies the one or more
3 columns as including at least one column from a relational table.

1 24. (Previously Presented) A computer-readable medium carrying one or more sequences
2 of one or more instructions for presenting, as an object, data from a set of one or more
3 tables residing in one or more databases, wherein the execution of the one or more
4 sequences of the one or more instructions causes the one or more processors to
5 perform the steps of:
6 reading first database metadata that defines how to generate a column object from one
7 or more columns;
8 reading a first set of data from the one or more columns of a plurality of rows from
9 the set of one or more tables, wherein second database metadata defines said
10 one or more tables, wherein said second database metadata does not specify
11 how to generate said column object from said one or more columns;
12 generating, in the manner defined by said first database metadata, a particular column
13 object based on said first set of data; and
14 presenting a second set of data from said set of one or more tables as object oriented
15 data by presenting said second set of data as said object that has said particular
16 column object as an attribute.

1 25. (Canceled)

- 1 26. (Previously Presented) The computer-readable medium of Claim 24, wherein the step
2 of generating a particular column object includes generating a collection object.
- 1 27. (Previously Presented) The computer-readable medium of Claim 26, wherein the step
2 of generating a collection object includes generating said collection object as a list of
3 elements belonging to a single data type.
- 1 28. (Previously Presented) The computer-readable medium of Claim 26, wherein the step
2 of generating a collection object includes generating said collection object as a nested
3 table.
- 1 29. (Previously Presented) The computer-readable medium of Claim 26, wherein the step
2 of generating a particular column object includes generating a column object
3 belonging to a user specified object type.
- 1 30. (Previously Presented) The computer-readable medium of Claim 26, wherein the step
2 of generating a particular column object includes generating a column object that is a
3 reference to another object.
- 1 31. (Previously Presented) The computer-readable medium of Claim 30, wherein the step
2 of generating a particular column object includes generating a column object that is a
3 reference to an object presented by an object view.

1 32. (Previously Presented) The computer-readable medium of Claim 30, wherein the step
2 of generating a particular column object includes generating a column object that is a
3 reference to an object residing in a database.

1 33. (Previously Presented) The computer-readable medium of Claim 20, the
2 steps further comprising the step of generating a reference to the object
3 based on the object id.

1 34. (Previously Presented) The computer-readable medium of Claim 33, wherein the
2 steps further comprise the step of accessing the object based on the reference
3 generated for the object.

1 35. (Previously Presented) The computer-readable medium of Claim 34, wherein the
2 steps further comprise the step of accessing the object based on the reference
3 generated for the object.

1 36 – 37 (Canceled)

1 38. (Currently Amended) A method for deriving object ids for objects of an object
2 class, comprising:
3 storing data in a table of a database that is managed by a database server and;
4 wherein the table is defined by a table definition, comprising: and the object class
5 is defined by an object class definition;

6 maintaining, separate from the table definition and object class definition,
7 metadata that indicates how to derive object ids from values stored in the
8 table; and
9 the database server deriving based on the metadata, object ids for objects of the
10 data in object class from the table based on the metadata values in the table.

1 39. (Previously Presented) The method of Claim 38, further comprising
2 the step of generating, based on a particular object id of said object
3 ids, an object reference.

1 40. (Previously Presented) The method of Claim 39, further including
2 the steps of:
3 presenting particular data from said table as an object belonging to an object class
4 and having said particular object id;
5 said database server executing a database statement that identifies said object
6 reference; and
7 wherein execution of said database statement causes the database server to access
8 said particular data as said object.

1 41. (Currently Amended) A method for presenting data from a set of one or more
2 tables in a database, the method comprising the steps of:
3 in response to executing a query statement that conforms to a query language and
4 that references an object view as if the object view were a table,
5 performing the steps of:

6 wherein executing the query statement includes:
7 reading data from one or more rows of the set of one or more tables
8 indicated by metadata that defines said object view, the object
9 view defining a presentation of data as a set of objects that reside
10 in said database, the set of one or more tables including at least one
11 relational table; and
12 accessing said data from one or more rows as a set of objects that reside in
13 said database.

1 42. (Canceled)

1 43. (Currently Amended) The method of claim ~~42~~41, wherein:
2 said ~~database~~query statement includes an object reference to a particular object of
3 said set of objects; and
4 wherein execution of said ~~database~~query statement by said database server causes
5 said database server to access said data from one or more rows.

1 44. (New) The method of claim 41, wherein said query statement specifies an
2 operation that causes manipulating data in the one or more table.

1 45. (New) The method of claim 41, wherein said query language is PL/SQL.

1 46. (New) The method of claim 41, wherein said query language is SQL.